

CLAIMS

1. (Currently Amended) A drive circuit for delivering high-level power to a load, the drive circuit comprising:

a high power circuit including a set of semiconductor switching devices capable of being coupled to the load and delivering the high level power thereto; and

a logic circuit generating signals to control the semiconductor switching devices;

a low power circuit that controls to transmit the signal from the logic circuit to the high power circuit; only when the low power circuit is receiving electrical power; and;
~~wherein the low power circuit includes~~

~~a first circuit portion that provides at least one control signal that is at least indirectly communicated to the high power circuit and that controls the delivering of the high level power by the high power circuit; and~~

~~a second circuit portion coupled to the first circuit portion, wherein the second circuit portion is capable of disabling the first circuit portion so that the at least one control signal avoids taking on values that would result in the high power circuit delivering the high level power to the load.~~

a safety circuit electrically independent of the logic circuit to control the application of power to the low power circuit.

2. (Cancelled)

3. (Currently Amended) The drive circuit of claim 1, wherein the safety circuit is~~second circuit portion includes~~ a safety relay circuit that is coupled to a power terminal of the first circuit portion low power circuit, and wherein the safety relay circuit decouples the power terminal of the first circuit portion low power circuit from a power supply in order to disable the first circuit portion low power circuit.

4. (Currently Amended) The drive circuit of claim 1, wherein the ~~second circuit portion includes~~ safety circuit is a safety relay circuit that is coupled to a pull-up resistor of the first circuit portion low power circuit, and wherein the safety relay circuit

disables the ~~first circuit portion~~ low power circuit by at least one of coupling the pull-up resistor to ground and decoupling the pull-up resistor from a power supply.

5. (Withdrawn) The drive circuit of claim 4, wherein the safety relay ~~circuit~~ additionally is coupled to a power terminal of the ~~first circuit portion~~ low power circuit, and wherein the safety relay ~~circuit~~ couples the power terminal of the ~~first circuit portion~~ low power circuit to ground in order to further disable the ~~first circuit portion~~ low power circuit.

6. (Currently Amended) The drive circuit of claim 4, wherein the safety relay ~~circuit~~ includes a coil, a normally-open contact, and a normally-closed contact, wherein the contacts are physically coupled so that only one of the contacts can be closed at any given time, and wherein the safety relay ~~circuit~~ disables the ~~first circuit portion~~ low power circuit when power is provided to the coil.

7. (Currently Amended) The drive circuit of claim 1, wherein the ~~second circuit~~ safety circuit ~~includes a component that~~ is coupled to an override port of the ~~first circuit~~ low power circuit, and wherein the ~~second circuit~~ safety circuit disables the ~~first circuit~~ low power circuit by providing a first signal to the override port of the ~~first circuit~~ low power circuit.

8. (Currently Amended) The drive circuit of claim 7, wherein the ~~second circuit~~ safety circuit includes a hardware switch that is capable of being switched between first and second states, and wherein, when the switch is switched in the first state, the ~~second circuit~~ safety circuit provides the first signal to the override port of the ~~first circuit~~ low power circuit.

9. (Currently Amended) The drive circuit of claim 8, wherein the ~~second circuit~~ safety circuit further includes a NOR gate having first and second input terminals, wherein the NOR gate receives a second signal from the hardware switch and a third signal from the ~~first circuit~~ low power circuit at the first and second input terminals, and

wherein the NOR gate outputs a fourth signal that is one of equal to or functionally related to the first signal.

10. (Original) The drive circuit of claim 8, wherein the high power circuit includes at least one coil that outputs a signal indicative of a current delivered by the high power circuit to the load, and wherein a determination is made regarding whether the signal indicative of the current is proper when the switch is switched in the first state.

11. (Currently Amended) The drive circuit of claim 1, wherein the ~~first circuit~~ low power circuit includes a ~~microprocessor~~, an inverter circuit, and a buffer circuit.

12. (Currently Amended) The drive circuit of claim 11 wherein, when the ~~first circuit~~ low power circuit is not disabled, the ~~microprocessor~~ logic circuit outputs a plurality of preliminary signals to the inverter circuit, the inverter circuit converts the plurality of preliminary signals into a plurality of modified signals, and the buffer circuit provides the at least one control signal in response to the plurality of modified signals, and each of the preliminary signals, the modified signals, and the at least one control signal is a pulse width modulated (PWM) signal.

13. (Currently Amended) The drive circuit of claim 11, wherein the inverter circuit has open collector output terminals that are coupled to the buffer circuit, wherein the ~~second circuit portion includes~~ safety circuit is a safety relay ~~circuit~~ that is coupled to a pull-up resistor that is coupled between the safety relay ~~circuit~~ and both one of the open collector output terminals and a corresponding input terminal of the buffer circuit, and wherein the safety relay ~~circuit~~ at least one of decouples the pull-up resistor from a power supply and couples the pull-up resistor to a ground in order to disable the ~~first circuit portion~~ low power circuit.

14. (Currently Amended) The drive circuit of claim 13, wherein the safety relay ~~circuit~~ also is coupled to an additional pull-up resistor that is coupled to a third circuit portion that is coupled to an enable input of the buffer circuit, and wherein the

safety relay ~~circuit~~ at least one of decouples the additional pull-up resistor from the power supply and couples the additional pull-up resistor to the ground in order to further disable the first circuit portion-low power circuit by disabling the buffer circuit.

15. (Currently Amended) The drive circuit of claim 1, wherein the high power circuit includes a plurality of high power transistor devices that are light-actuated and a plurality of photodiodes receive the at least one control signal from the lower power circuit, and wherein the high power transistor devices are electrically isolated from the photodiodes.

16. (Withdrawn) The drive circuit of claim 1, wherein the ~~second circuit portion includes~~ safety circuit is an isolation device that is capable of communicating a signal provided from an additional device to the first circuit portion-low power circuit.

17. (Withdrawn) The drive circuit of claim 16, wherein the isolation device includes one of a DC-to-DC converter and an optical isolator.

18-23. (Cancelled)

24. (New) A motor drive circuit for delivering high-level power to a load, the drive circuit comprising:

- a high power circuit including a set of semiconductor switching devices capable of being coupled to the load and delivering the high level power thereto;

- a logic circuit generating signals to control the semiconductor switching devices;

- a low power circuit to transmit the signal from the logic circuit to the high power circuit; only when the low power circuit is receiving electrical power; and

- a set of ports exposed by the drive allowing connection of a safety circuit electrically independent of the logic circuit to the drive to control the application of power to the low power circuit.